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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/606,029	06/25/2003	Steven E. Brenner		3937

7590 08/01/2005

Steven E. Brenner
136 CC Highway
Blackwell, MO 63626

EXAMINER	
BASINGER, SHERMAN D	

ART UNIT	PAPER NUMBER
3617	

DATE MAILED: 08/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary	Application No.	Applicant(s)	
	10/606,029	BRENNER, STEVEN E.	
	Examiner	Art Unit	
	Sherman D. Basinger	3617	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *05 July 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *4-17* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *15-17* is/are allowed.

6)☒ Claim(s) *4-14* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *25 June 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

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DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 4-7 are rejected under 35 U.S.C. 102(b) as being anticipated by figures 6 and 7 of the instant application.

In figures 6 and 7 of the instant application, the split ring face seal is shown in figure 6, the seal face is 510, the drive shaft if 500, the raised fiber bearing surfaces are 514 (Surfaces 514 are Delrin inserts, Delrin being a fiber material in that it can be made of KEVLAR fiber filled acetal), the rubber thrust boot is 530, the ring is 506, the stern tube is 504, and as is shown in figure 7 the thrust boot is pinned to the face seal.

In claim 1 "formed from a single blank of self lubricating fiber material wherein the single blank is split into two half rings joined at a polished surface" is a process step as is "said split ring face seal is formed from a said blank of self lubricating fiber material and wherein

said seal face is formed on said blank by rotating said blank on a lathe in a clockwise and then in a counter clockwise direction while applying polishing grit to said seal face".

Patentability of product by process claims depend on the claimed structure as opposed to the process.

With regard to the rejection of claims 4-7 as set forth above note *In re NOMIYA, KOHISA, AND MATUSMURA, CCPA, 184 USPQ 607,* MPEP 2113 and MPEP 2129.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 8-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over figures 6 and 7 of the instant application in view of Cohen.

Applicant has admitted that figures 6 and 7 of the instant application are prior art.

In figures 6 and 7 of the instant application the split ring face seal is 510, the drive shaft is 500 and the raised bearing surfaces or raised fiber bearing surfaces integrally formed on the inside diameter of the seal are 514 (Surfaces 514 are Delrin inserts, Delrin being a fiber material in that it can be made of KEVLAR fiber filled acetal).

The split ring face seal of figures 6 and 7 of the instant application is not of self lubricating fiber material.

Cohen discloses a seal ring 120 preferably made of self lubricating polymer matrix. In view of this, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains to make the seal ring

510 of figures 6 and 7 of self lubricating fiber material. Motivation to do so is to avoid having to provide some type of lubrication for the seal.

In claim 8 "formed from a single blank split into two half rings joined at a polished surface" is a process step as is "said split ring face seal is machined from a said blank and wherein

said seal face is formed on said blank on a lathe in a

clockwise and then in a counter clockwise direction while applying polishing grit to said seal face".

Patentability of product by process claims depend on the claimed structure as opposed to the process.

With regard to the rejection of claims 4-7 as set forth above note *In re NOMIYA, KOHISA, AND MATUSMURA, CCPA, 184 USPQ 607,* MPEP 2113 and MPEP 2129.

Allowable Subject Matter

3. Claims 15-17 are allowed.

Response to Arguments

4. Applicant's arguments filed July 5, 2005 with regard to claims 4-14 have been fully considered but they are not persuasive.

5. Applicant points out:

It is believed that examiner intended to reject claims 4-14 and not

just 4-13 as indicated.

6. In response, it is pointed out that the examiner inadvertently listed only claims 4-13 as being rejected under 35 U.S.C. 103 in the first sentence of paragraph 2 of the DETAILED ACTION. It is also further pointed out that while claim 14 was not listed in the sentence beginning paragraph 2 of the DETAILED ACTION, claim 14 was treated within the body of that rejection.

7. Applicant argues: Claims 4-14 were rejected under 35 USC 103a as unpatentable over admitted prior ad of Figures 6 and 7 in view of Cohen. The admitted prior aft split ring 510 was not self lubricating and was a composite material that relied upon water pressure from pump 550 to lubricate the seal, often these prior art seals overheat and glaze over leading to failure. The two halves of the prior art seal 510 were not joined at a polished surface as argued by examiner, the two halves were molded separately and the joint surface was left unmachined. Thus the Prior art does not show two halves of a split ring joined at a polished surface as claimed.

8. In rebuttal, the limitations "formed from a single blank of self lubricating fiber material wherein the single blank is split into two half rings joined at a polished surface" and formed from a single blank split into two half rings joined at at least one polished surface" are process steps in a product claim. As such, these limitations do not add patentability to claims 1 and 8. Apparatus claims depend on structural differences for patentability.

9. Applicant argues: The reason for the current halves mating at a polished surface is to maintain diametrical accurately during the manufacturing and remanufacturing processes. The pair can later be remounted on a lathe and the face can be remanufactured and repolished using the threaded holes and the polished surfaces between the pair as reference points to reset the seal on the lathe fixture. This makes the current split ring seal repairable unlike the prior art which is not repairable. The current invention can be remounted in a lathe fixture and has sufficient diametrical accuracy to allow the seal face to be returned.

10. In rebuttal, this argument is noted. However, the patentability of claims 1 and 8 depend upon structural differences from the prior art. As of now, claims 1 and 8 and the claims depending therefrom do not define structural differences with respect to the prior art.

11. Applicant argues: The admitted prior art relies on Delrin (Trade name for Acetal) inserts for the shaft wear surface. Applicant claims a fibrous material. Delrin is not fibrous as claimed. Specifically, applicant discloses (and in claims 7 and 13 claims) a fibrous material that is polished in one direction and then the other direction to remove fibers from the polished surface. It would not be necessary to polish Delrin, but if Delrin were polished there would be no benefit to polishing in one direction and then the other because Delrin does not have a fiber base as described, therefore Delrin is not considered to be fiber material as disclosed.

12. In rebuttal, Delrin can be made from KEVLAR fiber filled acetate. When made as such Delrin is a fibrous material. With regard to claims 7 and 13, they are process steps

depending from apparatus claims. Apparatus claims depend upon structural differences for patentability.

13. Applicant argues: The admitted prior art is not formed from a single blank of fiber material as

disclosed and claimed. In fact none of the prior art disclose any portion to be fiber, such as Simsite as disclosed. The finely machined seal face made from a single blank of fiber is what gives the current invention its advantageous properties, not only of being strong, and self lubricating, but also of being repairable.

The admitted prior art uses Delrin inserts to create the shaft wear surface.

As disclosed this arrangement requires an additional manufacturing step and has been found to create an undesirable wear groove on the propeller drive shaft that can require an expensive shaft replacement. The admitted prior art therefore does not show integrally formed raised areas forming the shaft wear surface.

Integral raised wear surfaces give greater accuracy and more wear area, yielding longer life and less shaft damage, than is possible with inserts.

14. Again, in rebuttal it is pointed out that Delrin can be made of KEVLAR fiber filled acetal. As such Delrin is a fibrous material. The limitations "formed from a single blank of self lubricating fiber material wherein the single blank is split into two half rings joined at a polished surface" and formed from a single blank split into two half rings joined at at least one polished surface" are process steps in a product claim. As such, these

limitations do not add patentability to claims 1 and 8. Apparatus claims depend on structural differences for patentability.

15. Applicant argues: Examiner combined the admitted prior ad with Cohen to disclose a self

lubricating polymer matrix. However, as noted above, a polymer is not a fiber as disclosed and claimed. Cohen discloses a matrix but not a fiber as disclosed. Cohen does not have a fiber base that would be elected by polishing in one direction and then the other as disclosed and claimed.

16. In rebuttal, in claim 8 only defines the seal as of self-lubricating material. A fiber is not claimed in this instance. Only the raised bearing surfaces are claimed in claims 1 and 8 as being of fiber. The Delrin inserts of the prior art anticipates the raised bearing surfaces being of fiber.

17. Applicant argues: New claim 15 and 16 include the steps of polishing the planar surface

where the two halves are joined and the step of polishing in a first direction and reversing to polish in a second direction with a finer grit. This step of polishing and reversing is not shown in the prior art. Examiner had previously used Walker modified in view of Cohen and Scobie to reject similar original claims 1-3 now cancelled.

Like all the prior art Walker and Scobie do not show fiber material.

Scobie shows polishing in one direction but the material of Scobie is not

fiber. Examiner argued, in a prior action, that in reversing direction one can

make sure the face is very well polished, but it is not necessary to reverse direction to do that. Reversing the direction of Scobie would not accomplish anything toward a better polish, only in respect to polishing a fiber seal face could the benefit of reversing direction be experienced. Reversing direction in a non-fiber material has no effect on the process.

New claim 17 includes the steps of remounting the seal face to the lathe fixture and repolishing it. These are the steps of remanufacturing not allowed for in prior art split ring seals. A split ring can usually not be remanufactured. Examiner shows bolts in Scobie but he does not show the result which is to obtain a seal face that can be remanufactured after a first use. The bolts AND polished face between the two halves give the unexpected result that the split ring face can be resurfaced to the degree of accuracy needed for reuse. Walker does disclose machining mating surfaces on a split ring but does not show the result of being rebuild able and does not show the matching on a fiber seal. Both Scobie and Walker actually teach one piece rings. The ring of Walker is split, but it is always bolted and pinned together except at installation. The split ring of the current invention is truly split at all times. During the machining the split ring requires bolts holes and a fixture to connect it to the lathe. In use the split ring of the current invention is also split, not connected with pins and bolts as with Walker. This is one reason why the polished mating surface of the present invention, as disclosed and claimed, is important, without the polished face there would be no accuracy in working with the piece.

18. Claims 15-17 are indicated as being allowable for the above reasons and in view of the limitation "installing threaded holes in the blank". Neither Walker nor Scobie disclose installing "threaded" holes in the blank.

Conclusion

19. Applicant's amendment to claims 1 and 8 necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

20. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sherman D. Basinger whose telephone number is 571-

272-6679. The examiner can normally be reached on Monday through Friday, 5:30 a.m. to 2:00 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Samuel J. Morano can be reached on 571-272-6684. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Sherman D. Basinger
Primary Examiner
Art Unit 3617

8/27/08

7/27/05